CLAIMS:

1. A resist removal method, comprising:

providing a semiconductor substrate;

forming a resist-comprising layer over the substrate;

contacting the resist-comprising layer with a chemical mechanical polishing pad and a polishing fluid, the contacting being effective to remove at least a portion of the resist-comprising layer; and

the polishing fluid having a particle concentration of less than or equal to approximately 0.1 weight percent during the initiation of the contacting.

2. The method of claim 1 where the resist-comprising layer comprises a material selected from the group consisting of a photoresist material, a non-photosensitive resist composition and a polyimide material.

3. The method of claim 1 where the chemical mechanical polishing pad comprises a polyurethane material.

4. The method of claim 1 where the polishing fluid comprises a pH of from about 8 to about 12.

5. The method of claim 1 where the polishing fluid comprises a pH of from about 8 to about 12; and comprises one or both of ammonia and TMAH.

6. The method of claim 1 where the polishing fluid comprises water.

7. The method of claim 1 where the polishing fluid is chemically unreactive with the layer.

8. The method of claim 1 further comprising prior to the forming the resist-comprising layer, forming a conductive material layer over the substrate, the conductive material layer comprising a material selected from the group consisting of platinum, iridium, ruthenium, tantalum and mixtures thereof.

9. The method of claim 1 further comprising prior to the forming the resist-comprising layer, forming a tantalum-containing mass over the substrate; and wherein the polishing removes the resist-comprising layer selectively relative to the tantalum-containing mass.

10. The method of claim 9 wherein the tantalum-containing mass comprises one or both of silicon and nitrogen in addition to the tantalum.

11. The method of claim 1 further comprising prior to the forming the resist-comprising layer, forming a conductive material layer over the substrate, the conductive material layer comprising platinum.

12. The method of claim 11 where the contacting continues until an upper surface of the conductive material layer is substantially exposed.

13. The method of claim 11 where the contacting further comprises providing a monitoring apparatus for determining when an upper surface of the conductive material layer is substantially exposed.

14. The method of claim 13 where the monitoring apparatus comprises at least one of a torque monitoring apparatus and an optical monitoring apparatus.

15. The method of claim 1 further comprising:

prior to the forming the resist-comprising layer, forming a conductive material layer over the semiconductor substrate, the conductive material layer comprises a material selected from the group consisting of platinum, iridium, ruthenium, tantalum and mixtures thereof;

the chemical mechanical polishing pad comprises a polyurethane material;

the polishing fluid comprises a material chemically unreactive with the conductive material layer; and

the majority of any particles present at the initiation comprise silica.

16. The method of claim 15 where the contacting continues until an upper surface of the conductive material layer is substantially exposed.

17. The method of claim 16 where the contacting further comprises providing a monitoring apparatus for determining when the material layer is substantially exposed.

18. The method of claim 1 further comprising, prior to forming the resist-comprising layer:

forming at least one recessed region within the semiconductor substrate;

forming a conductive material layer over the semiconductive substrate and within the at least one recessed region;

the forming of the conductive material layer comprising forming the conductive material layer within the at least one recessed region, the conductive material layer partially filling the at least one recessed region and extending laterally outward from such partially filled region over an upper surface of the semiconductor substrate; and

the forming of the resist-comprising layer comprising forming the resist-comprising layer within the at least one partially filled recessed region, the resist-comprising layer filling the at least one partially filled region and extending laterally outward from such filled region over an upper surface of the conductive material layer.

19. The method of claim 18 where the contacting continues until the upper surface of the conductive material layer is substantially exposed.

20. The method of claim 19 further comprising:

after the upper surface of the conductive material layer is substantially exposed, replacing the polishing fluid with a second polishing fluid having a composition effective for chemical mechanical polishing the conductive material layer; and

contacting the conductive material layer with the chemical mechanical polishing pad and the second polishing fluid, the contacting continuing until the upper surface of the semiconductor substrate is substantially exposed.

21. The method of claim 20 where the conductive material layer comprises tantalum and one or both of silicon and nitrogen, and wherein the second polishing fluid comprises T605™, available from Hitachi, together with from about 0.1 weight% to about 0.5 weight% H_2O_2.

22. The method of claim 18 where the semiconductor substrate comprises a semiconductive portion and an insulative portion and where the at least one recessed region is formed within the insulative portion.

23. The method of claim 18 where the at least one recessed region comprises a region for forming a capacitor, and where the conductive material layer comprises a capacitor electrode.

24. The method of claim 18 where forming the resist-comprising layer comprises:

applying a photoresist material over the conductive material layer and into the at least one recessed region to form a photoresist layer; and

hard baking the resist layer.

25. The method of claim 18 where the conductive material layer comprises a conductive barrier material layer.

26. The method of claim 25 where the conductive barrier material layer comprises tantalum silicon nitride and/or tantalum nitride.

27. The method of claim 18 where the material layer comprises tantalum silicon nitride and/or tantalum nitride.

28. A method for forming a capacitor structure comprising:

forming a recess within a semiconductor substrate;

forming a layer of conductive material over the semiconductor substrate, the layer lining a bottom and sidewalls of the recess to partially fill the recess and extending laterally outward from the partially filled recess over an upper surface of the semiconductor substrate;

filling the partially filled recess with a resist material, the resist material extending laterally outward from the recess as a resist material layer over an upper surface of the conductive material;

contacting the resist material layer with a chemical mechanical polishing pad and a polishing fluid, the contacting being effective to remove at least a portion of the resist material layer, the polishing fluid comprising a concentration of particles, other than particles generated by polishing of the resist, of less than or equal to 0.1 weight percent; and

stopping the contacting when substantially all of the layer of conductive material disposed over the upper surface of the semiconductor substrate is exposed.

29. The method of claim 28 where the concentration of particles in the polishing fluid, other than particles generated by polishing of the resist, is about 0 weight percent.

30. The method of claim 28 where the resist material comprises an organic polymer material selected from the group consisting of a photoresist material, a non-photosensitive photoresist composition and a polyimide material.

31. The method of claim 28 where the chemical mechanical polishing pad comprises a polyurethane material.

32. The method of claim 28 where the polishing fluid comprises water.

33. The method of claim 28 where the polishing fluid comprises water and one or both of ammonia and TMAH.

34. The method of claim 28 where the chemical mechanical polishing pad comprises a polyurethane material, the polishing fluid comprises water and the particles, if any are present, comprise silica.

35. The method of claim 28 further comprising hard baking the layer of resist material prior to the contacting.

36. The method of claim 28 further comprising:

after the upper surface of the layer of conductive material is substantially exposed, replacing the polishing fluid with another polishing fluid having a composition effective for chemical mechanical polishing the layer of conductive material; and

contacting the layer of conductive material with the chemical mechanical polishing pad and the other polishing fluid, the contacting continuing until the upper surface of the semiconductor substrate is substantially exposed.

37. The method of claim 36 where the semiconductor substrate comprises a semiconductive portion and an insulative portion and where the at least one recessed region is formed within the insulative portion.

38. The method of claim 37 where the exposed upper surface of the semiconductor substrate is an upper surface of the insulative portion.

39. The method of claim 36 where the at least one recessed region comprises a region for forming a capacitor, and where the layer of conductive material comprises a capacitor electrode.

40. The method of claim 36 where forming the resist layer comprises:

applying a resist material over the layer of conductive material, into and filling the at least one recessed region effective to form the resist layer; and

hard baking the resist layer.

41. The method of claim 28 where the layer of conductive material comprises platinum.

42. The method of claim 28 where the layer of conductive material comprises tantalum.

43. The method of claim 28 where the layer of conductive material comprises a material selected from the group consisting of platinum, iridium, ruthenium, tantalum and mixtures thereof.

44. The method of claim 28 where the layer of conductive material comprises a layer of conductive barrier material.

45. The method of claim 44 where the layer of conductive barrier material comprises tantalum silicon nitride and/or tantalum nitride.

46. The method of claim 28 where the layer of conductive material comprises tantalum silicon nitride and/or tantalum nitride.

47. A method for forming a capacitor structure comprising:

forming a recess within a semiconductor substrate, the recess having a bottom and sidewalls;

depositing a layer of conductive material over the bottom and sidewalls of the recess and extending laterally outward from recess over the semiconductor substrate adjacent the recess, the layer of conductive material forming a partially filled recess;

filling the partially filled recess with an organic material, the organic material extending laterally outward from the filled recess forming an organic material layer over the conductive material layer adjacent the recess;

first removing the organic material layer from over the conductive material layer adjacent the recess with a first polishing process utilizing a first polishing liquid;

second removing the conductive material layer adjacent the recess with a second polishing process utilizing a second polishing liquid, the second polishing liquid being different than the first polishing liquid; and

third removing the organic material from within the recess.

48. The method of claim 47 where the layer of conductive material comprises a material selected from the group consisting of platinum, iridium, ruthenium, tantalum and mixtures thereof.

49. The method of claim 47 where the layer of conductive material comprises a layer of conductive barrier material.

50. The method of claim 49 where the layer of conductive barrier material comprises tantalum silicon nitride and/or tantalum nitride.

51. The method of claim 47 where the organic material comprises a material selected from the group consisting of a photoresist material, a non-photosensitive photoresist composition and a polyimide material.

52. The method of claim 47 where the first polishing process comprises contacting the organic material layer with a chemical mechanical polishing pad and the first polishing liquid, the contacting being effective to remove at least a portion of the organic material layer over the conductive material layer adjacent the recess.

53. The method of claim 47 where the second process comprises contacting the conductive material layer with the chemical mechanical polishing pad and the second polishing liquid, the contacting being effective to remove at least a portion of the conductive material layer adjacent the recess.